any diameter and having it pass through all possible values within proper limits by varying the ordinate or abscissa will give the sum of all the diameters. Dividing the sum of all the diameters by the number, which is equal to the circumference of the ellipse, will give the average diameter. The difference in the results $\frac{263}{250}b$ and $\frac{228}{250}a$ is about $\frac{1}{1000}b$. ED.]

7. Proposed by F. P. MATZ, M. Sc., Ph. D., Professor of Mathematics and Astronomy in New Windsor College. New Windsor, Maryland.

A letter is known to have come either from *Oshkosh* or *Ashland*. The only two consecutive letters legible on the postmark are *SH*. What is the probability that the letter received came from Oshkosh?

I. Solution by the PROPOSER.

Of the six pairs of consecutive letters in the word Oshkosh, *SH* are 2 pairs. Hence if the letter came from Oshkosh, the probability that *SH* was the legible pair is $\frac{2}{6}$, or $\frac{1}{3}$. If the letter came from Ashland, this probability is $\frac{1}{6}$. The *a posteriori* probability that the letter received came from Oshkosh, is, therefore, $P_O=\frac{\frac{2}{6}}{\frac{2}{6}+\frac{1}{6}}=\frac{2}{3}$; and that it came from Ashland, is $P_A=\frac{\frac{1}{6}}{\frac{2}{6}+\frac{1}{6}}=\frac{1}{3}$.

$\therefore P_O+P_A=\frac{2}{3}+\frac{1}{3}=1$.

Note.—In this connection, the following problem is appropriate and interesting: A letter is known to have come either from *Sing Sing* or *Lansing*. The only four consecutive letters legible on the postmark are *SING*. What is the probability that the letter received came from Sing Sing?

Answer: $P_S+P_L=\frac{8}{13}+\frac{5}{13}=1$.

II. Solution by M. A. GRUBER, A. M., War Department, Washington, D. C.

According to the arrangement of the postmarks, *sh* of Ashland and the first *sh* of Oshkosh would be found in the left portion of the postmark, and the last *sh* of Oshkosh would be found in the right portion or near the top of the postmark.

There will, therefore, be two cases:—

(1) When a letter or figure of the date indicates the position of postmark.

(2) When the position of postmark cannot be determined.

Case 1. If *sh* is found in the right portion of postmark, the chances in favor of *Oshkosh* are $\frac{1}{0}$, or *infinity*; *i. e.* the letter came from Oshkosh.

If *sh* is found in the left portion, since the names of both places have the same number of letters and *sh* in both names is preceded only by the initial letter, the chances are equally divided, or $\frac{1}{1}$.

Case 2. In this case, since there are two *sh*'s in Oshkosh and only one in Ashland, the chances in favor of Oshkosh are 2 to 1.

III. Solution by G. B. M. ZERR, Principal of High School, Staunton, Virginia.

Since *sh* is found twice in Oshkosh and once in Ashland, the probability that the word is Oshkosh is $\frac{2}{3}$.